# Nitrosodiethylamine
# (NDEA)

1973 Hoffmann, Rathkamp and Liu report only trace amounts of less than 5 nanograms per cigarette of NDEA in the mainstream smoke of a non-filter U.S.-blended cigarette. Using filters, the authors observed a selective reduction of volatile nitrosamines from 60 to 85%. [1]

1977 Brunneman, Yu and Hoffmann reported NDEA in concentrations of up to 4.8 nanograms per cigarette in the un-aged mainstream smoke of 17 commercial and experimental cigarettes and 8 to 73 nanograms per cigarette in the sidestream smoke. [2]

1979 The U.S. Surgeon General reports that mainstream smoke from a nonfilter cigarette contains 15 to 50 nanograms of NDEA. [3]

1982 The Third Annual Report on Carcinogens concludes that there is sufficent evidence for the carcinogenicity of NDEA in experimental animals. The Report adds that "up to 0.008 micrograms per cigarette had been found in mainstream smoke and approximately 10 times more in sidestream smoke." [4]

1982 The U.S. Surgeon General states that NDEA, which is reported in cigarette smoke in concentrations of 0.1 - 28 nanograms per cigarette, is "among the most potent environmental carcinogens" in the nitrosamine family. [5]

1984 The International Agency for Research on Cancer concludes that NDEA is carcinogenic in experimental animals. [6]

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## REFERENCES

[1] Hoffmann, D., Rathkamp, G., and Liu, Y.Y., *On the Isolation and Identification of Volatile and Nonvolatile N-Nitrosamines and Hydrazines in Cigarette Smoke*, in: N-Nitroso Compounds in the Environment, International Agency for Research on Cancer Scientific Publication, No. 9 (1974).

[2] Brunnemann, K.D., Yu, L., and Hoffmann, D., *Assessment of Carcinogenic Volatile N-Nitrosamines in Tobacco and in Mainstream and Sidestream Smoke from Cigarettes*, CANCER RESEARCH, 37:3218-3222 (1977).

[3] U.S. Public Health Service, *Smoking and Health: A Report of the Surgeon General* (1979).

[4] National Technical Information Service, *Third Annual Report on Carcinogens*, (1982).

[5] U.S. Public Health Service, *The Health Consequences of Smoking: Cancer. A Report of the Surgeon General* (1982).

[6] International Agency for Research on Cancer, *Tobacco Smoke*, IARC Monograph, 38 (1985 Draft).

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